

Chapter 7

MONITORING AND ASSESSMENT

An ongoing water quality surveillance and monitoring program is essential for implementation of a Basin Plan. It allows characterization of ambient water quality and the degree of support for beneficial uses on both a short-term and a long-term basis. "Baseline" data can be used to set standards for water bodies which currently do not have site-specific standards. "Trend" information defines the need for and allows prioritization of regulatory actions. Monitoring can document compliance with permit conditions, and the success of remedial activities.

The U.S. Environmental Protection Agency (USEPA) requires states to submit biennial reports on the quality of their water bodies under Section 305(b) of the federal Clean Water Act. It also requires identification of water bodies with any of several specific problem types (§ 131.11, 304(l), 314, and 319 "lists"). Beginning in 1989, the State Water Resources Control Board (State Board) and the Regional Boards have supplemented the "305(b) Report" with a detailed "Water Quality Assessment" computer database. The assessment, which will be updated on an ongoing basis, will provide the background for funding decisions and the Clean Water Strategy.

The Porter-Cologne Act (Section 13267) authorizes Regional Boards to investigate water quality and to require dischargers to submit monitoring reports. It also (Section 13383) authorizes the State and Regional Boards to establish discharger monitoring requirements.

Because of the large size of the Lahontan Region, the large number of water bodies in it, the difficulties of sampling in remote terrain and severe weather, and ongoing funding constraints, detailed monitoring data are available for only a few of the Region's waters. The following is a summary of the kinds of monitoring information which are used by Regional Board staff in their ongoing planning, assessment, regulatory, and enforcement activities. Additional information on the assessment process is also provided. Because of expected year-to-year changes, no attempt has been made to provide a detailed list of monitoring stations, or to include monitoring results in this Chapter. Readers who wish

to obtain information on monitoring data for a particular water body, or to obtain a copy of the current Water Quality Assessment, should contact Regional Board staff.

Water Quality Monitoring

Baseline and Trend Monitoring

The State Board has several ongoing monitoring programs which are statewide, or which involve sampling within the jurisdiction of more than one Regional Board. Programs such as the State Mussel Watch, and the Striped Bass Study (which affects the San Francisco Bay and Delta) are of little relevance to the Lahontan Region. However, the statewide Toxic Substances Monitoring Program (TSMP) samples several stations in the Lahontan Region every year.

Under the TSMP, the Department of Fish and Game collects fish or other organisms at each station, preserves and prepares specimens according to a rigorous protocol, and analyzes them for a spectrum of metals and/or toxic organic chemicals. Results are reported to the State Board, which prepares an annual report interpreting the data on a geographic and historical basis. Because of the small sample numbers and (in some cases) the lack of water quality criteria, results do not necessarily indicate impairment of beneficial uses. However, elevated toxic levels do indicate a need for more specific study of possible problems and their causes. In the Lahontan Region, elevated metals levels have been detected in fish from streams affected by past mining activity.

Another statewide program which has involved monitoring is the Well Investigation Program (WIP), which was initiated in 1986 to document sources of organic chemical degradation in public drinking water supply wells. This program is implemented at both the State and Regional Board levels. As of 1989, only 12 degraded wells (less than 1% of the total) had been identified in the Lahontan Region. Funding is no longer available for Regional Board monitoring under this program. Monitoring may be resumed in the

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future. Additional discussion on the enforcement-related aspects of the WIP is provided in Chapter 4.

The State Board has conducted shorter special studies in response to legislative mandates, on topics such as selenium in agricultural drainage waters and nitrate in ground water. The State Board has also contributed funding to cooperative studies by other state and federal agencies, such as the Lake Tahoe Interagency Monitoring Program (see Chapter 5).

The Regional Board also periodically conducts or manages special studies which provide baseline or trend monitoring data. Funds for these studies have come from the federal Section 205(j) grant program and the State Board special studies budget. Other potential funding sources are the Section 314 Clean Lakes Grant program and the Section 319 Nonpoint Source program.

The Regional Board makes use of monitoring data collected by other agencies such as the U.S. Geological Survey, the U.S. Forest Service, the California Department of Fish and Game, the California Department of Water Resources, and the Nevada Division of Environmental Protection. "Basic research" projects are also useful in assessing baseline/trend conditions. Ongoing research by California universities takes place at Lake Tahoe, Mono Lake, and Eagle Lake. The University of Nevada also conducts research in Lahontan Region waters.

Volunteer monitoring programs have been initiated elsewhere in California under the supervision of other Regional Boards. Such programs may involve data collection by school classes or citizens' groups who have been provided with training and equipment by Regional Board staff. Quality assurance/quality control (QA/QC) programs must be implemented to ensure that data will be useful for Regional Board programs. The Lahontan Regional Board will consider proposals for volunteer monitoring programs on a case-by-case basis.

Compliance Monitoring

Waste discharge requirements and NPDES permits adopted by the Regional Board include discharger self-monitoring programs. Monitoring reports and technical reports may also be required of dischargers independently of waste discharge requirements (CA

Water Code § 13267[d]). Dischargers may be required to monitor surface waters upstream and downstream of the discharge, as well as at the discharge point. Ground water monitoring, including installation of monitoring wells, may be required where appropriate. Monitoring programs range from the simple (periodic visual inspections of erosion and drainage control facilities at shopping centers) to the complex (physical, chemical, and biological analyses by municipal wastewater treatment plants and industrial dischargers). Parameters to be analyzed may be as varied as turbidity associated with dredging, toxic metals in geothermal discharges, and nutrients and pesticides in ground water underlying golf courses. Self-monitoring report submittal is tracked and report results are evaluated by Regional Board staff on an ongoing basis. The Board also receives monitoring data as a result of other regulatory programs (e.g., various toxics control programs).

Because many of the self-monitoring programs in the Lahontan Region do not require the collection of quantitative information, or require monitoring of only a few parameters, discharger monitoring data cannot be relied upon to provide quantitative background information on most of the receiving waters of the Region. This is particularly true of nonpoint source discharges.

Regional Board staff conduct periodic inspections of dischargers, and may collect samples for separate analysis of compliance with permit conditions. Occasionally, split samples may be taken to test the accuracy of the discharger's laboratory. Sampling of certain types of dischargers is required under state administrative procedures.

The California Environmental Quality Act (Public Resources Code § 21081.6) requires that monitoring and reporting programs be set up for any mitigation measures adopted as conditions of project approval. In general, the Regional Board's discharger monitoring programs fulfill the CEQA requirements. However, when the Regional Board acts as lead agency for the adoption of Basin Plan amendments or policies, additional monitoring may be necessary to document the accomplishment of mitigation conditions.

Remedial Project Monitoring

Regional Board staff are also involved in monitoring to measure the impacts of state-funded remedial projects. The Regional Board is responsible for oversight of the Leviathan Mine Pollution Abatement Project in the Bryant Creek drainage in Alpine County. This includes periodic sampling of an established surface and ground water station network for selected toxic metals and related parameters. Biological monitoring may be added when the recovery of instream beneficial uses begins to be apparent.

Complaint and Enforcement Monitoring

When investigating a reported water quality problem, Regional Board staff may collect samples and take photographs to document the extent of the problem and provide a basis for enforcement or remedial action. Monitoring is also performed by staff and/or the discharger as a follow-up to an enforcement action (e.g., underground tank cleanup). The existence of previous "baseline/trend" data is an important factor in documenting and correcting pollution.

Aerial Surveillance

The Regional Board's annual budget includes funds for aerial surveillance. Flights are made in chartered aircraft at least once a year over portions of the Region to take photographs for documentation of current conditions and detection of problems. Because of the large size and remote nature of much of the Lahontan Region, aerial surveillance allows the detection of problems which might not be apparent to inspectors on the ground.

The Regional Board also uses aerial photographic mapping by contractors and other agencies as the basis for special studies and remedial programs. For instance, aerial photographs of the Leviathan Mine were used in design of the Pollution Abatement Project. Historical and current aerial photographs also are being used to document shoreline erosion problems at Lake Tahoe.

Quality Control and Data Management

Federal regulations and state policy require the preparation and implementation of Quality Assurance/Quality Control (QA/QC) Plans for almost all monitoring carried out by the Regional Board's

staff or its contractors. Dischargers must use laboratories approved by the Regional Board's Executive Officer and/or certified by the State Department of Health Services. The Regional Board's laboratory has an approved QA/QC program, and staff follow a standard "chain of custody" process in collection, transport, and shipment of samples.

Discharger monitoring reports are kept in the Regional Board's files; older files are microfiched. The Board has increasingly sophisticated computer facilities for analysis of data collected in special studies. "Raw" data are periodically made available to the State Board for entry into the STORET and/or SWQIS databases for use by other agencies.

The results of special studies are generally summarized in Regional Board staff reports and are discussed at public meetings of the Regional Board. The results of complaint monitoring are provided to the person or agency submitting the complaint. Copies of Regional Board planning documents and special studies reports are provided to public and university libraries.

Water Quality Assessment

The State Board has been preparing "Section 305(b) Reports" since the mid-1970s. Most of these reports have been fairly general in nature, highlighting a few significant problem areas and estimating total area or stream mileage of waters statewide which were classified as "good," "medium," or "poor" quality. In 1989, the State Board began a more detailed Water Quality Assessment (WQA) process to fulfill USEPA reporting requirements and to provide the basis for prioritizing funding under the State's Clean Water Strategy.

The WQA is a computer database. It includes a table which lists water bodies of each Region alphabetically by water body type (lakes, streams, ground water, etc.) Initially, Regional Boards were directed to include at least all water bodies mentioned by name in their Basin Plans in the WQA table. Additional water bodies are to be added in future updates of the WQA, with the eventual goal of including all waters of the Region. The 1991 WQA for the Lahontan Region included about 700 entries, but there are many more water bodies in the Region.

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For each water body, the WQA table identifies the wetland, lake, or ground water basin area or the stream mileage classified as having “good,” “intermediate,” “impaired,” or “unknown” water quality. The table includes space for brief narrative problem descriptions. It identifies problem sources as point, nonpoint, or both. It also indicates whether the water body is included on one or more of the following federal “lists” (numbers refer to Sections of the federal Clean Water Act):

- 131.11 Segments which may be affected by toxic pollutants, or segments with concentrations of toxic pollutants that warrant concern.
- 303(d) List of Water Quality Limited Segments where objectives or goals of the Clean Water Act are not attainable with the Best Available Treatment/Best Control Technology (BAT/BCT).
- 304(M) So-called “mini-list” of waters not meeting State adopted numeric water quality objectives due to toxic point sources after implementation of BAT/BCT.
- 304(S) So-called “short-list” of waters not achieving water quality standards due to point source discharges of toxic pollutants after implementation of BAT/BCT.
- 304(L) So-called “long-list” of waters not meeting the water quality goals of the Clean Water Act after implementation of BAT/BCT.
- 314 A list of lake priorities for restoration.
- 319 A list of impaired surface water bodies from nonpoint source problems due to both toxic and nontoxic pollutants.

The information used by Regional Board staff in compiling and revising the WQA table includes the type of monitoring data discussed above, records of past Regional Board enforcement actions, professional judgement of Regional Board and other State or federal agency scientists and engineers, and public comments.

The WQA database also includes the capability to print out a more detailed “Fact Sheet” for each water body in the table. Fact Sheets can include longer

problem descriptions, information on threatened or impaired beneficial uses, and summaries of current and projected remedial actions by the State Board and/or the Regional Board. Due to time constraints and, in many cases, lack of information, detailed Fact Sheets have not been prepared for all water bodies in the Lahontan Region's WQA table. Additional Fact Sheets will be added during the ongoing WQA update process.

The WQAs adopted by the nine Regional Boards were combined into a statewide WQA which was formally adopted by the State Board. The State Board is using the system to print out statewide “reports”: statistical tables, graphs, and charts summarizing the total numbers or percentages of water bodies affected by different types of water quality problems. The State Board also uses information in the WQA to prioritize funding proposals affecting specific water bodies. A Clean Water Strategy ranking system characterizes water bodies according to their resource value and condition (degree of threat or impairment), and project proposals according to their feasibility.

Future Monitoring and Assessment Needs

The completeness and accuracy of the WQA, and the validity of decisions based upon it, depend to a great extent on the availability of good monitoring data. As noted above, monitoring data are not available for most water bodies in the Lahontan Region. Regional Board staff will continue to submit funding proposals for special studies to increase knowledge of background water quality, and understanding of water quality problems. Staff will also encourage monitoring and research by other agencies and universities to fill the many significant data gaps in the Lahontan Region.